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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,067	04/06/2001	Don E. Curry	005040/TCG/PMD/LE	7268

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APPLIED MATERIALS, INC.
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EXAMINER

ZERVIGON, RUDY

ART UNIT	PAPER NUMBER
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1763

3

DATE MAILED: 01/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/828,067

Applicant(s)

CURRY ET AL.

Examiner

Rudy Zervigon

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2. Claims 21-28, and 36 and 37 are rejected under 35 U.S.C. 102(e)ⁱ as being anticipated by Liu et al (USPat. 6,403,491). Liu teaches a wafer processing apparatus (Figure 2) comprising:

- i. A processing chamber (100; column 10, lines 20-65) defined by walls
- ii. A wafer supply opening (139) formed in one of the walls for transferring a wafer (10) into the chamber
- iii. A susceptor (55, Figure 21) in the chamber on which the wafer can be located so that an upper surface of the wafer faces the upper wall of the chamber (Figure 2)
- iv. A manifold component (102; Figure 2, 4; column 12, lines 9-62) located on the chamber and, together with the upper surface of the upper wall, define a manifold cavity (conduits between 103 and volume 112; Figure 4)
- v. A gas supply line (212; Figure 4) connected to the manifold component, wherein the upper wall (134, 710, 220; column 10, line 66 – column 11, line 15; Figures 7a-f, 8-11) has a plurality of gas supply openings, substantially equal in size, (340, 350a, 348; Figure 4, 7a,b; 225, Figures 8-11), each formed into an upper surface and out of a lower surface thereof,

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lower ends (714, 716; Figure 7b; 727, Figure 7c; 220a; Figure 10) of at least some of the gas supply openings extending at an angle other than at right angles relative to the upper surface of the wafer so that a gas, when exiting the openings flows at an angle other than at right angles relative to the upper surface of the wafer (column 14, lines 34-36; column 15, lines 38-50)

- vi. An off-center exhaust line (114) connected to the gas chamber, for flowing a gas from the chamber
- vii. First (first 350a; Figure 4; 225; Figures 8-11) and second (second 350a; Figure 4; 225; Figures 8-11) ones of the openings on opposite sides of a point (traversed by symmetry axis of 134, Through the geometric center of plate 220; Figures 8-11) on the upper wall, the first and second opening (714, Figure 7b; 225; Figure 10) having a lower end (bottom surface of 134, 225; Figure 10) which is angularly and oppositely displaced relative to an upper end (top surface of 134; 220) thereof in a selected direction about the point so that the openings jointly create a circular gas flow pattern in the chamber (column 16, lines 49-63; Figure 9, 10)
- viii. A third of the openings (225; Figures 8-11) on a side of the second opening opposing the first opening, has a lower end which is displaced in the first direction relative to an upper end thereof
- ix. A channel (114; Figure 4) is defined within the chamber, the channel being concentric with the wafer (Figure 2), gas flowing radially outward over the wafer into the channel, and from the channel to the exhaust location and into the exhaust line (Figure 2)

Claim Rejections - 35 USC § 103

3. Claims 29-35 are rejected under 35 U.S.C. 103(a) as being obvious over Liu et al (USPat. 6,403,491) in view of Maher et al (USPat. 5,248,371).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Liu only teaches uniformly distributed gas supply openings as discussed above. Additionally, Liu does not teach that the openings are more densely located in the upper wall than on the other side thereof. Liu does not teach the low regime of operation as being either laminar or turbulent.

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Maher teaches a similar gas distribution plate (90; Figure 4a) which has non-uniformly distributed gas supply openings (92, 94).

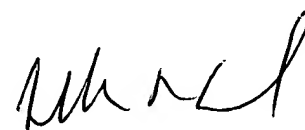
It would have been obvious to one of ordinary skill in that art at the time the invention was made for Liu to relocate his gas supply openings so that they are unevenly distributed and to operate his apparatus such that the flow within the chamber is laminar.

Motivation for Liu to relocate his gas supply openings so that they are unevenly distributed is to provide for a desired flow pattern within the reactor. Motivation for Liu to operate his apparatus such that the flow within the chamber is laminar is to provide for optimized operation of the apparatus, (In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980); In re Hoeschele , 406 F.2d 1403, 160 USPQ 809 (CCPA 1969); Merck & Co. Inc . v. Biocraft Laboratories Inc. , 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied , 493 U.S. 975 (1989); In re Kulling , 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990), MPEP 2144.05).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPat. 6,432,259.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (703) 305-1351. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after final fax phone number for the 1763 art unit is (703) 872-9311. The official before final fax phone number for the 1763 art unit is (703) 872-9310. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (703) 308-0661. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (703) 308-1633.



JEFFRIE R. LUND
PRIMARY EXAMINER

ⁱ **Recent Statutory Changes to 35 U.S.C. § 102(e)**

On November 2, 2002, President Bush signed the 21st Century Department of Justice Appropriations Authorization Act (H.R. 2215) (Pub. L. 107-273, 116 Stat. 1758 (2002)), which further amended 35 U.S.C. § 102(e), as revised by the American Inventors Protection Act of 1999 (AIPA) (Pub. L. 106-113, 113 Stat. 1501 (1999)). The revised provisions in 35 U.S.C. § 102(e) are completely retroactive and effective immediately for all applications being examined or patents being reexamined. Until all of the Office's

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automated systems are updated to reflect the revised statute, citation to the revised statute in Office actions is provided by this attachment. This attachment also substitutes for any citation of the text of 35 U.S.C. § 102(e), if made, in the attached Office action.

The following is a quotation of the appropriate paragraph of 35 U.S.C. § 102 in view of the AIPA and H.R. 2215 that forms the basis for the rejections under this section made in the attached Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

35 U.S.C. § 102(e), as revised by the AIPA and H.R. 2215, applies to all qualifying references, except when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. For such patents, the prior art date is determined under 35 U.S.C. § 102(e) as it existed prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. § 102(e)).

The following is a quotation of the appropriate paragraph of 35 U.S.C. § 102 prior to the amendment by the AIPA that forms the basis for the rejections under this section made in the attached Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

For more information on revised 35 U.S.C. § 102(e) visit the USPTO website at www.uspto.gov or call the Office of Patent Legal Administration at (703) 305-1622.